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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/624,438	07/24/2000	Xiaopin Zhang	GR 99 P 2378	5408

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Lerner and Greenberg P A
Post Office Box 2480
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EXAMINER

NGUYEN, LINH M

ART UNIT	PAPER NUMBER
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2816

DATE MAILED: 12/19/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/624,438

Applicant(s)

ZHANG ET AL.

Examiner

Linh M. Nguyen

Art Unit

2816

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 September 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11, 12 and 18-21 is/are rejected.
- 7) ☒ Claim(s) 13-17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 24 September 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

This is a reply to the Applicants' amendment submitted on 09/24/2002. According to this amendment, claims 11-21 are now presented in the instant application.

Drawings

1. The corrected or substitute drawings were received on 09/24/2002. These drawings are acceptable.

Abstract

2. The corrected abstract received on 09/24/2002 is acceptable.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 11-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Hirano et al. (U.S. Patent No. 5,812,022).

With respect to claim 11, Hirano et al. discloses, in Figure 4, a controllable current source circuit comprising (1) an output [Vout], (2) supply voltage terminal [Vdd] and a reference potential terminal [Ground], and (3) the configuration of (a) a first driver stage [M26] having a first controlled path containing a first transistor [M26] and (b) a second driver stage [M27] having a second controlled path containing a second transistor [M27], such that (i) the first and second controlled paths are connected in series between the voltage supply terminal [Vdd] and the reference potential terminal [Ground], and (ii) only the first driver stage switches on and off

in dependence on an input signal [at gate of M26], and the second driver stage is switched on and carries a stabilized current.

With respect to claim 12, Hirano et al. discloses, in Figure 4, that the first driver stage [M26] forms a part of a current mirror circuit [M28, M25, M26] receiving a flow of a stabilized current when the first driver stage is switched on.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 18, 19, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirano et al. (U.S. Patent No. 5,812,022) in view of Olgaard et al. (U.S. Patent No. 5,939,949).

With respect to claims 18, 19, and 21, Hirano et al. discloses, in Figure 4, a controllable current source circuit, including all of the claimed limitations as expressly recited in claim 1, except for a phase locked loop which comprises: 1) a phase comparator having a phase comparison circuit a) with a reference signal input for receiving a reference signal and an input for receiving an input signal whose phase angle is to be regulated, and b) connected to the current mirror for stabilizing a current flowing into the comparison circuit and into the second driver circuit, 2) a loop filter having an output for outputting an output signal controlling the phase angle of the input signal, and 3) a comparator configured to switch between two output states and having a single output terminal connected to the current source.

Olgaard et al., discloses, in Figs. 1 and 4, a phase locked loop circuit comprising (1) a phase comparator [103] having a phase comparison circuit (a) with a reference signal input [R_SIG] for receiving a reference signal, and an input [N_SIG] for receiving an input signal whose phase angle is to be regulated, and b) connected to a current mirror [404] for stabilizing a current flowing into the comparison circuit and into a second driver circuit [403, 405, 407], 2) a loop filter [107], 3) a comparator [103] being configured to switch between two output states and having a single output terminal connected to the current source [105,106].

To modify the device of Hirano et al. by additionally configuring a phase locked loop circuit comprising 1) a phase comparator having a phase comparison circuit a) with a reference signal input for receiving a reference signal and an input for receiving an input signal whose phase angle is to be regulated, and b) connected to the current mirror for stabilizing a current flowing into the comparison circuit and into the second driver circuit, 2) a loop filter having an output for outputting an output signal controlling the phase angle of the input signal, and 3) a comparator configured to switch between two output states and having a single output terminal connected to the current source, for maximal synchronization and reduced power consumption would have been obvious to one of ordinary skills in the art at the time of the invention since such a configuration of the phase locked loop with specifically detailed connections for the stated purpose has been well-known in the art as evidenced by the teachings of Olgaard et al. (*see Olgaard et al.; col. 1, lines 7-9*).

7. Claim 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirano et al. (U.S. Patent No. 5,812,022) in view of Olgaard et al. (U.S. Patent No. 5,939,949), as applied to claim 18 above, and further in view of Tomassetti et al. (U.S. Patent No. 5,043,677).

With respect to claim 20, the combination Hirano et al. and Olgaard et al. disclose all of the limitations, as indicated in claim 18, except for an exclusive-OR gate being included in the phase comparison circuit. Tomassetti et al. discloses, in Fig. 1, a phase locked loop system comprising a comparator [16] having an exclusive-OR gate [16]. To include an exclusive-OR gate in the phase comparison circuit of the combination Hirano et al. and Olgaard et al. for signals comparison would have been deemed obvious to one of ordinary skills in the art at the time of the invention since such a configuration of an exclusive-OR gate in the phase comparator for the stated purpose has been a well-known practice in the filed of integrated electronic circuits as evidenced by the teachings of Tomassetti et al. (*see Tomassetti et al.; col. 2, lines 7-9 and 58-59*).

Allowable Subject Matter

8. Claims 13-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter:

Prior art of record does not show or fairly suggest a second driver stage forms a part of a current mirror circuit causing a constant stabilized current to flow in the second driver stage, as called for in claim 13.

Remark and Conclusion

10. Applicants' arguments with respect to claims 11 and 18, submitted on 09/24/2002, have been considered but are moot in view of the new ground(s) of rejection.

The Examiner has seriously considered the amended claim 11, in regard to the Applicants' arguments on the anticipation rejections of claims 11-17 by the teachings of the cited prior art to Chonan, and on the 103(a) rejections of claims 18-21 over Olgaard et al. and Tomassetti et al. from the last paragraph of page 3 to the second paragraph of page 9 of the amendment. However, the limitations claimed in claims 11-12 are still found within *the teachings of a newly found prior art Hirano et al.*. Therefore, claims 11-12 remain rejected (*see 102(b) rejections set forth in this Office Action*). Claims 13-17 are found to be allowable since prior art or prior art of record does not teach about forming a part of a current mirror circuit causing a constant stabilized current flowing within the second driver stage (*see Allowable Subject Matter section set forth in this Office Action*). The limitations claimed in claims 18-21 are still found within the combined teachings of Hirano et al., Olgaard et al., and Tomasetti et al.; and consequently, these claims (18-21) remain rejected (*see 103(a) rejections set forth in this Office action*).

Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Linh M. Nguyen whose telephone number is (703) 305-0414. The examiner can normally be reached on Alternate Mon, Tuesday - Friday from 7:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan can be reached on (703) 308-4876. The fax phone numbers for the

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organization where this application or proceeding is assigned are (703) 305-0142 for regular communications and (703) 305-0142 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Linh M. Nguyen
Examiner
Art Unit 2816

LMN
December 16, 2002

A handwritten signature in cursive script, appearing to read 'Linh M. Nguyen', written in dark ink.